

# 山西西北部的一新犬齿类

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一些有意义的爬行动物化石最近发现于山西西北部保德县的林遮峪。在这些化石中,周明镇和孙艾玲记述了一个保存有三牙的左上颌骨,定名为黄河保德蜥,照他们看法是一种前棱蜥。现在在我研究其他部分化石发现了它们应代表一个以植物为食的犬齿类,这在我国还是初次发现。其要点可以记述于下:

## 記 述

### 亚目 犬齿类 *Cynodontia*

### 科 *Diademodontidae*

### 属 河套犬齿兽 *Ordosiodon* (新属)

### 种 林遮峪河套兽 *Ordosiodon lincheyüensis* (新种)

**标本** 一左下颌骨碎片,具有 12 个分化的牙齿或牙孔。

**付型** 两个破碎的单牙,但牙冠部分保存很好。参考标本:若干单牙和下颌的碎片。一部可归以上之个体;一部可能代表其他个体。古脊椎动物与古人类研究所编号 2483。

**层位与地点** 下三叠统最上部或中三叠统最下部。山西保德林遮峪。

**特征** 一个小的 *Diademodontid*。犬齿相当大,切面较圆。11 个犬齿后牙齿,其中 5 个较小,代表前臼齿;6 个较大,代表臼齿。没有牙间隙。6 个臼齿多少有一些左右延伸趋势。牙的边缘和牙冠一部分有很小的瘤状尖。最后一牙比其前者为小。

**描述** 因为下颌骨很破碎,所以很难多述其构造。只有牙列以下部分,局部保存。但是在后部向上突起部分可以看出。此开始于第六个犬齿后牙齿,逐渐向上向侧部延伸。在破裂处无其他骨可见。沿牙列侧面,骨表面并不平滑而具有钉状小突起。

一共有 12 个牙齿或牙孔保存,其中有五个只是残破牙面;另外七个仅以牙孔为代表。全牙列向外侧略呈弯曲。犬牙比较大,具有圆的横切面和粗壮的根。牙中孔为方解石质所填充。犬牙后并无如在其他 *Diademodontidae* 所看到的显著的间隙。所有五个前臼齿均可由牙孔看出,大小近相等,紧位于犬牙之后,比较小而且在一直线上排列。六个臼齿愈向后愈增大,但最后一个比其前者为小。前三个具有牙本身,但或多或少有损坏或被磨蚀。这几个多少向左右延伸。最后保存的一牙稍磨蚀,至少在牙的舌侧有三个可以清楚辨认的小尖。在所有三个牙的边侧都可以看出有尖的痕迹。第十个犬牙后牙齿的牙孔呈圆状,所以真正的牙可能不象其他牙那么左右加宽。部分的牙根还在。最后一个牙孔保存,侧面也少加宽。其巨大的空隙也为方解石所填充。这一个牙比以前的牙稍小。从这

一个牙齿后面看再不可能有其他牙齿。虽然在牙后的下颚骨有一裂痕,但看来连接是自然的,所以我们相信一共有十一个犬牙后的牙齿。就各牙齿或脱落或受磨蚀不等来看,很象代表牙齿的更换,如步龙 (Broom) 在一种犬齿类所描述的情况一样。

另外两个单牙也很有意义,因为可以对上述牙齿的构造加以补充。第一个单牙(图 C) 只有一大部分牙冠和牙根保存,也较左右延伸。牙冠稍磨蚀,但显出一 U 形部分具有珙瑯质残余。在放大镜下可以看出有许多清楚的小尖。在边缘也可看出有尖的痕迹。第二个牙(图 D) 的牙冠也破损,只有一部分牙冠未受磨蚀。牙边缘上也有清楚的小尖,并作螺旋状上升,最后达于中部的顶点(此处少磨蚀)。第一个牙显然代表臼齿中的较中间一个,而第二个牙齿可能靠前列一些,作为前臼齿显然太大。

其他标本,均太破碎难作可靠鉴定。但大多数(如不是全部)均可放入本种之中。

表 1 尺度(以毫米计)

(Table 1. Measurements (in millimeters).)

下颚保存长 (Preserved length of the jaw) .....	47.5
十二牙长 (Length of the tooth row from the anterior border of the canine to the posterior border of the last tooth) .....	38
犬牙长宽 (Length and breadth of the canine) .....	4.3×4
第七牙长宽 (Length and breadth of the seventh tooth) .....	1.8×3
第八牙长宽 (Length and breadth of the eighth tooth) .....	2.2×4.2
第九牙长宽 (Length and breadth of the ninth tooth) .....	4×5
第一单牙长宽 (Length and breadth of the first isolated tooth) .....	4×5
第二单牙宽 (Breadth at the breakage of the crown of the second tooth) .....	3.5

## 討 論

虽然所掌握的标本,十分破碎不全,但所保存的部分却具有特殊性质,所以可做可靠的鉴定。下颚的形状和牙齿的分化性质,都显然说明应归于犬齿类。牙的侧面宽伸情况再加以尖的发育,只能说明应归于以植物为主食的犬齿类。依照许耐 (v. Huene), 此类共有三科即 Chiniquodontidae, Diademodontidae 和 Traversodontidae, 但前一科和后一科只见于南美,而且层位较高(上三叠统),所以我们的标本非常可能属于 Diademodontidae 一科。

但是我们的标本还具有一些特殊性,以致难以和这一科的其他属相比较。这些性质是:没有牙间隙、圆锥形的犬齿以及上述的其他牙的一些特性。我们的标本显然代表一新属新种,所以取名为林遮峪河套兽,其特征如上所述。

Diademodontids 的属大多数均产自南非的犬颌兽层。河套兽极可能也产自中国颌兽的一层。

这个标本代表在中国第二次发现的犬齿类。由林遮峪地点的发现,把含化石的中三叠统下部的分布范围大大地扩展了。

从同一地点,周、孙二位描述了命名为黄河保德蜥的化石。主要为两个磨蚀的牙和一个具有两尖的牙。他们归于前稜蜥类。这个标本仅就大小而言即不能归于河套兽的上颚。牙齿构造也不同。毫无疑问,还需要更多的材料,才能解决存在的问题。

## 参 考 文 献

- Broili, F. und J. Schröder 1935 Beobachtungen an Wirbeltieren der Karrooformation. IX. Über den Schädel von *Gomphognathus* Seeley. Sitz. d. Bay. Akad. d. Wiss. Math.—nat. abt.
- 1935 Beobachtungen an Wirbeltieren der Karrooformation. X. Über die Bezeichnung von *Trirachodon* Seeley. Sitz. d. Bay. Akad. d. Wiss. Math.—nat. abt.
- 1936 Beobachtungen an Wirbeltieren der Karrooformation. XXIV. Über Theriodontier-Reste aus der Karrooformation Ostafrikas. Sitz. d. Bay. Akad. D. Wiss. Math.—nat. abt.
- Broom, R. 1913 On evidence of a mammal-like dental succession in Cynodont reptiles. Bull. Amer. Mus. Nat. Hist. 32, 465.
- 1919 On the genus *Gomphognathus* and its allies Rec. of the Albany Mus. III.
- 1932 The mammal-like Reptiles of South Africa. London.
- Chow, M. C. and A. L. Sun 1960 A new Procolophonid from Northwestern Shansi. Vert. Pal. 4, 11—13.
- Huene, F. v. 1956 Palaeontologie und Phylogenie der Niederen Tetrapoden. Jena.
- Young, C. C. 1959 Note on the First Cynodont from the *Sinokannemeyeria* fauna in Shansi, China. Vert. Pal. 3, 124—131.

## ON A NEW CYNODONT FROM NW SHANSI

(Summary)

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Some interesting specimens of reptiles have been found recently from Lin-chê-yüë, Paote, NW Shansi. Among them a fragment of left maxilla with three teeth has been described by Chow Min-chen and Sun Ai-lin as *Paoteodon huanghoensis*, a procolophonid according to them. I have the opportunity to examine the rest of the remains and found that they represent a new herbivorous cynodont so far unrecorded in China. They may be described as follows:

## DESCRIPTION

## Sub-Order Cynodontia

## Family Diademodontidae

Genus *Ordosiodon* (gen. nov.)Type species *Ordosiodon lincheyüensis* (sp. nov.)

**Type** A fragmentary left lower jaw with 12 differentiated teeth or alveoli of them.  
**Paratype:** Two broken isolated teeth with part of the crown well preserved. Referred *specimens:* Many isolated teeth and jaw fragments, apparently belong to the same individual but may include bones of other individual. All in Cat. No. V. 2483.

**Horizon and locality** Upper Most part of Lower Triassic or lowermost part of Middle Triassic. Lincheyüë, Paote, NW Shansi.

**Diagnosis** Rather small diademodontid. Canine rather large, rounded in cross-section. Eleven postcanine teeth of which five are small and may be considered as premolars and six

are larger, the molars. No diastema. Six larger molarized post-canine teeth more or less transversally extended. Margin of the crown and part of the crown with well formed palisade-like tubercles. The last tooth is smaller than the preceding one.

**Description** Since the lower jaw is so poorly preserved, there is little to say about its structure. Only the part below the teeth from the canine and the last alveole of the post canine tooth is preserved. Yet, the coronoid process can be observed. It starts to rise at the lateral border of the sixth post canine tooth and ascending very gently and laterally. No trace of the splenial can be observed below the breakage of dental. Along the lateral side of the tooth row the surface of the bone is not smooth, being decorated by a series of peg-like tubercles.

There are altogether twelve teeth of which five are represented by broken ones and seven by alveoli only. The row is weakly bent laterally. The canine is comparatively large with rounded cross-section and robust long root. Its pulpa is filled by calcite. There is no diastema as commonly present in other diademodontidae. The five premolars are indicated by alveoli only. They are subequal in size, immediately behind the canine comparatively small and situated in a straight line. The six molars are increasing in size posteriorly, the last one being, however, smaller than the preceding tooth. The first three are represented by actual teeth but more or less damaged or worn. They are more or less transversally widened. The crown of the last preserved tooth is worn but at least three small cusps are distinctly observable at the lingual side of the tooth. Traces of marginal development of palisade tubercles can be faintly seen in all the three teeth. The alveole of the tenth post canine tooth is well rounded so that the actual tooth may not be so broad as the preceding one. Part of the broken tooth is deeply situated in the alveole of the last tooth and is also transversally extended. Its large pulpa is also clearly indicated (also filled by calcite). This tooth is smaller than the preceding one. As judged by the bone behind this tooth there is no other tooth existed. Although there is a breakage behind the tooth but the connection seems to be quite natural so that we conclude that there are altogether eleven post canine teeth in our form. According to the dentition described above, it is very probable that replacement of teeth may take place as described by Broom for a cynodont (1913).

The two other isolated teeth are very interesting because they give us some supplementary data about the structure of the teeth. The first isolated tooth has only the crown and part of the root preserved. It is also laterally extended. The crown is worn but shows a U-shaped part with the remnant of the enamel. Looking carefully with enlarged lens a series of small cusps can be distinctly seen. Even along the border of the tooth at least traces of the tubercles can be observable. The second tooth is broken too, only part of the crown is preserved, but is a fresh unworn one. The marginal part of the tooth is clearly decorated by finely developed tubercles which ascend gradually upwards and finally connected with main apex of the tooth that is a little worn. The first tooth represents apparently a middle molar and the second one the anterior molar, it is too big for a premolar.

The other specimens are too fragmentary for getting a reliable determination. Most of them, if not all, are referable to the present form.

## DISCUSSIONS

Although the material at disposal is quite poor, the preserved part is very diagnostic for rather sure determination. The general shape of the lower jaw and the distinct differentiation of

the dentition point clearly that they belong to a cynodont. The lateral extent of the molars with cuspidate border suggest that our form can only belong to the types which are herbivorous. According to v. Huene three families of cynodonts are herbivorous: Chiniquodontidae, Diademodontidae and Traversodontidae. The first and the last families are geographically restricted to South America and also stratigraphically higher in horizon. So, our form belongs most probably to the family Diademodontidae.

But our form is characterized by a number of special features which prevent to compare further with the known members of the family. These features are: the absence of diastema, almost non laterally compressed canine, and the special features of the teeth as described above. Certainly we have here to deal with a new form of diademodontids for which we propose to name it as *Ordosiodon lincheyuensis*.

Most of the diademodontids are derived from the *Cynognathus* in S. Africa. Our form represents most probably the same level.

This is the second record of cynodonts in China. The Lincheyu locality extends the fossiliferous Trias considerably.

From the same locality Chow Min-chen and Sun Ai-lin have described a left maxilla as *Paoteodon huanghoensis*. It deals with two worn teeth and one bicuspid tooth. They consider it as a procolophonid. This specimen fits hardly with our here described material simply because it is too large for being the upper jaw of the new form. Furthermore, the teeth are different in structure. We like to have more data for clearing the question.

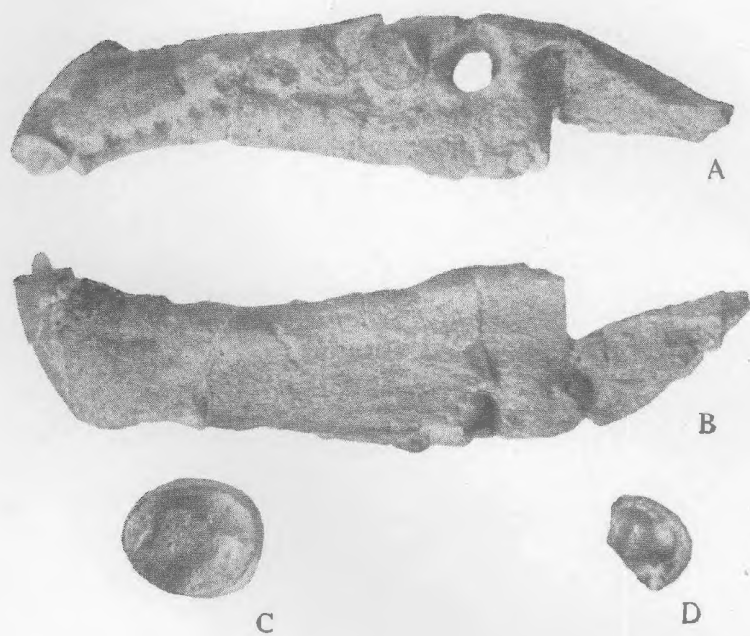


圖 A. 林遮峪河套兽的左下顎, 上視, 放大两倍。

(*Ordosiodon lincheyuensis*, gen. et sp. nov. Left lower jaw in Upper view.  $2\times$  nat. size.)

圖 B. 同上, 側視, 放大两倍。

(*Ordosiodon lincheyuensis*, gen. et sp. nov. the same in lateral view.  $2\times$  nat. size.)

圖 C. 林遮峪河套兽牙上視, 放大三倍。

(*Ordosiodon lincheyuensis* gen. et sp. nov. crown view.  $3\times$  nat. size.)

圖 D. 林遮峪河套兽牙上視, 放大三倍。

(*Ordosiodon lincheyuensis*, gen. et sp. nov. a broken tooth in crown view.  $3\times$  nat. size.)